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### Deposited in DRO:

15 November 2019

### Version of attached file:

Accepted Version

### Peer-review status of attached file:

Peer-reviewed

### Citation for published item:

Obeidat, Z. M. and AlGharabat, R. S. and Alalwan, A. A. and Xiao, S. H. and Dwivedi, Y. K. and Rana, N. P. (2020) 'Narcissism, interactivity, community, and online revenge behavior : the moderating role of social presence among Jordanian consumers.', *Computers in human behavior.*, 104 . p. 106170.

### Further information on publisher's website:

<https://doi.org/10.1016/j.chb.2019.106170>

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# **Narcissism, interactivity, community, and online revenge behavior: the moderating role of social presence among Jordanian consumers**

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## **Abstract**

This study tests the effect of personal and online characteristics on consumers' desire for revenge and their online revenge intentions. In light of the interactivity and community of social media platforms, it examines the notion that narcissism and social presence will increase consumers' desire for revenge and their online revenge intentions after a service failure. Based on a sample of 317 Jordanian consumers, the data analysis shows that the model has a very good fit and that narcissism, interactivity, and community significantly influenced consumers' desire for revenge. Social presence was found to have a moderating influence on the relationship between the desire for revenge and online revenge intentions. Implications for marketing managers are also discussed.

**Keywords:** Social media, Revenge, Social presence, Narcissism, Interactivity, Consumer

## 1. Introduction

In 2014, a young Jordanian customer hacked the website of one of the largest shopping malls after it refused his request to enter the mall to shop. Claiming entry was only for families and couples that day. The angry customer hacked the mall's website and left a message of the story of what they did to him on the front page (Chan & Janjarasjit, 2019; Obeidat, 2014). Online consumer revenge acts such as this one refer to the use of the Internet and social media platforms in both legal and illegal ways to get back at a service provider after a dissatisfying incident (Obeidat et al., 2017).

Due to the healing power of revenge (Grégoire et al., 2010), online revenge acts can be seen daily on social media platforms (Funches et al., 2009). Over the Internet and its platforms, consumers can use a variety of ways to get back at a misbehaving firm, such as status updates, tweets, spamming a company's page with angry messages, creating anti-consumption groups and websites, and hacking (Obeidat et al., 2017). Compared with offline revenge behaviors, online revenge behaviors can generate more publicity due to the perception of their greater reach, control, and risklessness (Obeidat et al., 2018; Tripp & Grégoire, 2011). Recent surveys show that 21 percent of young consumers use online platforms to complain after a service failure and 85 percent actually get revenge (Grant 2013). Another study has shown that about 60 percent of US customers have disseminated their negative experiences over social media (Gutbezahl, 2014). Due to this increasing use, the economic losses for firms have also increased with United Airlines losing over \$1.4 billion in stock value after viral attacks relating to their treatment of a single customer (Grégoire et al., 2018a). Consequently, it can be asked: Do consumers overreact in their revenge actions due to the prevalence of social media? Or do these revenge actions occur as a result of different individual factors?

The extant literature on consumer revenge behavior has generally focused either on identifying the forms of revenge behavior in the offline and online context (e.g., Obeidat et al., 2018; Funches et al., 2009), or on the antecedents of consumer revenge behavior (e.g., Grégoire et al., 2010; Grégoire & Fisher, 2008; Bougie et al., 2003) using either a justice theory or cognitive appraisal justifications (e.g., Obeidat et al., 2017; Joireman et al., 2013). Moreover, there is an emerging but limited research that highlights the changes in social and economic conditions, as well as the global expansion and consumer communication technology in collectivist Eastern countries such as China and Jordan, where consumer revenge activities have noticeably increased (Obeidat et al., 2018; Obeidat et al., 2017). However, we know little about the online revenge process and consumers' interaction with social media in Eastern cultures (Hossain et al., 2018; Arora et al., 2019). Recently, the Jordanian market witnessed an increasing number of online revenge acts among social media platforms with the majority of these acts employing illegal and more aggressive means (e.g., hacking, spamming, SEO manipulations) when compared to other contexts such as Britain, where customers tended to employ legal methods for revenge (e.g., complaints to consumer websites and reviews) (Kapoor et al., 2018; Obeidat et al., 2018). Understanding what drives these young Jordanian consumers to commit online revenge is particularly essential in this day and age, where consumer posts and reviews on social media platforms have become significant predictors of consumers' use and adoption of products and services (Venkatesh, 2003).

As a result, based on the theory of cognitive appraisal and task technology fit (i.e., TTF), we propose and test a model of online consumer revenge that incorporates both personal and technology-related factors. More specifically, the aim of this study is to increase the understanding of the antecedents of consumer revenge behavior in the online context by examining a number of possible predictors – namely, narcissism, social presence, interactivity, and community and their influence on consumers’ desire for revenge and their online revenge intentions. No research has yet studied the influence of factors relating to social media on consumers’ online revenge intentions (i.e., social presence, interactivity, and community). Another criticism that can be directed at the literature is the limited attention given to investigating the influence of personality traits on consumer revenge behavior (Obeidat et al., 2018). By examining the impact of certain personality traits such as narcissism, the present study aims also to address this gap in the literature. Consequently, this research makes three core contributions. First, literature on consumer revenge behavior mainly focuses on personal perceptions of the service failure (i.e., distributive, interactional, and procedural outcomes) and rarely considers the effect of personal traits that could encourage this behavior, such as narcissism and social presence on online platforms (Obeidat et al., 2018). Second, this research integrates certain online characteristics such as interactivity and community to explain the factors that motivate consumers to seek revenge in an online context. Third, the majority of the literature was conducted in Western countries and cultures. Thus, limited research attention was given to evaluating the online consumer revenge process in Eastern countries such as Jordan while also using theories that take into consideration the technological aspects that might encourage this behavior.

This study is structured as follows: the next section will examine the previous literature on consumer revenge, after which the theoretical framework and hypotheses will be presented. Next, the methodology is discussed, which is followed by the presentation of the main research findings. Finally, discussion of the findings will be provided together with the implications of this study.

## **2. Literature review**

### **2.1 Themes in the consumer revenge literature**

Research on consumer revenge behavior as a form of dysfunctional behavior has grown in the last 20 years with a trend toward identifying its antecedents and forms (Obeidat, 2014). Broadly referring to this behavior as revenge (e.g., Aladwani & Dwivedi, 2018; Grégoire et al., 2010), retaliation (e.g., Huefner & Hunt, 2000), or vengeance (e.g., Bechwati & Morrin, 2007), most scholars agree that it involves consumers attempting to cause harm to a service provider following unacceptable service (Zourrig et al., 2014; Grégoire et al., 2010; Zourrig et al., 2009).

Generally focusing either on the antecedents or forms of consumer revenge behavior, existing studies in the literature tend to explain this behavior from either a justice theory

perspective (e.g., Grégoire et al., 2010; Bechwati & Morrin, 2003) or from a cognitive appraisal perspective (e.g., Obeidat et al., 2017; Zourrig et al., 2009). Additionally, utilizing models that follow a cognition-emotion-action sequence as seen in Table 1, models examining consumer revenge often begin from evaluations of fairness and blame, leading first to a negative emotional state and a desire for revenge, and then to actual revenge. Factors such as lack of fairness dimensions, type of service failures, double deviations, failure severity, negative emotions, cognitive appraisals, dissatisfaction, relationship quality, perceived firm greed, and the consumer perception of the firm's motive were all identified as influencing consumer revenge actions (Obeidat et al., 2017; Joireman et al., 2013; Mdakane et al., 2012; Grégoire et al., 2010; Funches et al., 2009; Zourrig et al., 2009; Grégoire & Fisher, 2008; Bougie et al., 2003; Huefner & Hunt, 2000).

Moreover, when examining the motivations of consumer revenge acts in both the online and offline contexts, previous studies identified justice restoration, public exposure, perceived power, control, reach, and the risklessness of the Internet (Grégoire et al., 2018b; Obeidat et al., 2018; Grégoire et al., 2010). Regarding the forms of revenge, previous studies cited several acts in the offline context: complaining and spreading negative word-of-mouth (e.g., Grégoire et al., 2010), choosing a less optimal option (e.g., Bechwati & Morrin, 2003), and shoplifting and vandalism (e.g., Huefner & Hunt, 2000). In the online context, acts of revenge included negative online complaining for publicity (e.g., Grégoire et al., 2010) as well as social media revenge, online aggression revenge such as hacking, and third-party online revenge such as reviews and complaining to consumer advocacy platforms (Obeidat et al., 2018).

## **2.2 Cognitive appraisal theory & task technology fit theory:**

Cognitive appraisal theory by Lazarus (1991) states that after a stressful encounter, people normally undergo two sets of appraisals: a primary appraisal where the person evaluates the personal relevance and goal congruence of the stressful event, and secondary appraisal that determines the blame attribution for the encounter and the probability of successful coping (Zourrig et al., 2009). These appraisals often lead to an emotional elicitation state, which in turn leads to coping strategies (i.e., avoidance or confrontation). On the other hand, the task technology fit (i.e., TTF) theory proposes that individual performance will be enhanced if the capabilities of the IT match the tasks that the user must perform (Goodhue & Thompson, 1995). Consequently, this theory argues that personal characteristics could have an impact on shaping individual behavior toward adopting a technology or technology-based behavior if these traits fit the technology characteristics. Lately, the TTF model was used to explain consumer adoption of Internet blogs (Shang et al., 2007) and mobile banking (Tam & Oliveira, 2016). In relation to the technological characteristics, researchers have examined variables such as perceived usefulness, interactivity, community, and ease of use (Lu & Yang, 2014; Agnihotri et al., 2012) and in relation to personal traits, self-efficacy and computer experience (Lee et al., 2007), social influence (Venkatesh et al., 2003), and cost have all been found to influence behavioral intention (Min et al., 2008).

With the literature on consumer revenge explaining this behavior either on the basis of the justice and fairness dimensions (e.g., Joireman et al., 2013) or on the cognitive appraisal

processes consumers undergo (Obeidat et al., 2017), merely concentrating on these theories may not be enough in the online context due to the fact that this neglects examining the characteristics of social media platforms in driving online revenge behaviors. In fact, such characteristics (namely, interactivity and community) make the nature of online social platforms unique, and they attract millions of people to join platforms such as Facebook, Instagram, and Twitter. These characteristics also motivate people to engage emotionally, socially, and cognitively in different activities and actions on these platforms (Alalwan et al., 2017). Generally, the literature suggests that consumers will be more likely to adopt a technology or technology-based behavior (such as online revenge) if it fits their task at hand and enhances their act (Junglas et al., 2008; Lee et al., 2007). To put it differently, consumers are expected to take online revenge if they perceive that the characteristics of a platform (e.g., Facebook) facilitate and maximize the desired outcomes from such behavior (Goodhue, 1995).

This study adopts both the cognitive appraisal and the TTF theories for a number of reasons. The theory of cognitive appraisal incorporates the cognitive, emotional, and behavioral aspects of desired behaviors (Lazarus, 1991). Considering that consumers' revenge behaviors often follow the sequence of cognition-emotion-action (e.g., Obeidat et al., 2017; Joireman et al., 2013), cognitive appraisal theory seemed particularly suitable to our research. Nevertheless, this theory does not consider the role of technology characteristics in influencing behavior. Consequently, we chose to incorporate the technological aspect of TTF in our framework due to its capacity for including technological features as part of an explanation of consumer intention and behavior. Since its origin, TTF has been commonly employed and joined with other theories (e.g., the technology acceptance model) to explain consumer behavioral intention and adoption of certain technologies (Dishaw & Strong, 1999).

*<Insert Table 1 about here>*

### **3. Theoretical background and research hypotheses**

*<Insert Table 2 about here>*

#### **3.1. The role of personal factors**

##### ***3.1.1. Primary and secondary appraisal and the desire for revenge***

A primary appraisal normally occurs after a stressful incident a person experiences such as a double deviation service failure where the firm fails in its delivery of a service as well as in its attempt to recover the situation (Obeidat et al., 2017). As seen in Table 2, this appraisal refers to the consumer's evaluation of the relevance or importance of the service failure to his/her needs (Dalakas, 2005). The consumer here evaluates the relevance of the service failure (i.e., its goal relevance), the degree to which it inhibits him/her from achieving the goal (i.e., goal congruence), and the degree to which it affects his/her ego (i.e., ego involvement) (Obeidat et al., 2017). If all three dimensions were violated, then coping is needed (Dalakas, 2005). Previous findings in the literature (e.g., Grégoire et al., 2018a; Joireman et al., 2013; Tripp & Grégoire, 2011; Grégoire et al., 2010; Soscia, 2007) have established that acts of consumer revenge often follow a double deviation. In addition,

previous findings have showed that stressful service failure encounters often lead to a primary appraisal stage (Obeidat et al., 2017; Stephens & Gwinner, 1998). In addition, evidence suggests that while collectivist consumers normally enter a primary appraisal after a stressful encounter, they evaluate a taxing situation as containing greater challenge rather than damage to their well-being in order to fit with the environment they are in (Zourrig et al., 2009). Consequently, we propose that a double-deviation service failure (i.e., failure in service performance and recovery action) will lead consumers to enter a primary appraisal stage, which in turn will cause a desire for revenge. Thus:

*H1: Primary appraisals of the service failure will positively influence the desire for revenge.*

In addition, previous research has highlighted that consumers also engage in a secondary appraisal process after a service failure whereby they evaluate their coping potential with regard to the stressful encounter (i.e., a secondary appraisal (Lazarus, 1991)). In this stage, consumers examine the party responsible for the service encounter failure (i.e., they attribute blame) and the perceived behavioral control over the coping action (Obeidat et al., 2017). Generally, evidence suggests that individualistic consumers tend to assess more harm than consumers from collectivist cultures. Several research findings have highlighted the importance of perceived control and blame attributions in triggering acts of consumer revenge (e.g., Obeidat et al., 2017; Grégoire et al., 2010; Grégoire & Fisher, 2008; Dalakas, 2005; Stephens & Gwinner, 1998). Moreover, the consumer misbehavior literature has also revealed important relations between acts of misbehavior and consumer control perceptions (Chen et al., 2009; Tonglet, 2000). This is due to the fact that when consumers feel they are better equipped to perform a certain behavior due to certain facilitating factors, the likelihood to performing this behavior increases. For example, Obeidat et al. (2017) found that some consumers prefer to get revenge online due to the higher perceived control over the action and the ability to express themselves and perform the behavior better when compared to the traditional means of revenge in the offline context. Tonglet (2000) also found a link between perceived control and acts of shoplifting. Consequently, with the higher probability of success of coping in the online setting (Obeidat et al., 2017), this research suggests that the consumer's secondary appraisal after a double deviation will also result in a desire for revenge. Hence:

*H2: Secondary appraisals of the service failure will positively influence the desire for revenge.*

### ***3.1.2. The role of emotions and the desire for revenge***

The role of the emotional elicitation state after consumers enter primary and secondary appraisals has been established (Dalakas, 2005). Moreover, several findings in the literature point out that an emotional elicitation occurs after consumers undergo primary and secondary appraisal after a stressful encounter (e.g., Obeidat et al., 2017; Dalakas, 2005; Stephens & Gwinner, 1998). In addition, the literature on consumer revenge has also emphasized the key role of negative emotions in triggering acts of consumer revenge after service failures (e.g., Grégoire et al., 2018b; Obeidat et al., 2017; Grégoire et al., 2010). Two key emotions have been extensively examined in the literature: anger and betrayal (Grégoire et al., 2010). Anger has been found to be one of the most important emotions leading consumers to desire vengeance (Bonifield & Cole, 2007). Perceived betrayal also

has been particularly linked to the online context due to the empirical findings that consumers' belief in or sense of being betrayed motivates and drives them to form a desire for revenge (Obeidat et al., 2017; Zeelenberg & Pieters, 2004) or to seek revenge in the online medium (Grégoire & Fisher, 2008; Ward & Ostrom, 2006). Evidence also suggests that Eastern consumers perceive strong emotions leading to a desire for revenge, in particular anger and betrayal after a service failure (Obeidat et al., 2018; Obeidat et al., 2017). Consequently, we propose that both of these negative emotions will arise after a service failure, leading the consumer to form a desire for revenge:

*H3a: Anger will positively influence the consumer's desire for revenge.*

*H3b: Betrayal will positively influence the consumer's desire for revenge.*

### **3.1.3. The role of narcissism**

Generally, narcissistic people seek attention and care deeply about their physical appearance (Vazire et al., 2008), and they like to develop social relationships that enhance their self-image (Cisek et al., 2014; Egan et al., 2014; Campbell & Foster, 2007; Rose, 2007; Vazire & Funder, 2006). In recent years, the prevalence of social media networks has provided narcissistic people with the perfect medium for narcissistic self-regulation because these networks allow them to maintain large social circles and provide enhanced control over the presentation of their posts in ways that boost their self-image (Buffardi & Campbell, 2008). Moreover, previous findings have shown that narcissist users tend to change their profile pics more frequently and have more friends and posts than those with low levels of narcissism (Ong et al., 2011). In addition, narcissists on social media have been reported to have greater negative interactions and anti-social behaviors (Ackerman et al., 2011). Consequently, in this study we propose that narcissism will lead to a stronger desire for vengeance and online revenge intentions for four main reasons. First, evidence shows that narcissists are more unforgiving and tend to react more strongly to misbehaviors (Exline et al., 2004). Thus, they are more likely to be aggravated after a bad service encounter and will be less likely to forgive the firm for it. Consequently, a narcissist's cognitive appraisal processes and emotions will be stronger as the bad service encounter involves direct threats to his/her ego (Obeidat et al., 2017). Second, because narcissists feel eligible to be treated better than other consumers (Ong et al., 2011), they find it particularly unbearable if they do not get even with the offender for their mistreatment (Lee & Ashton, 2012). Third, given that narcissists tend to post more online (Buffardi & Campbell 2008), they are more likely to get their revenge online. Finally, while the need to share and interact with others is high among collectivist cultures such as Jordan (Triandis, 1973), evidence also suggests that narcissism is highly related to a vulnerable and fragile self-concept that always seeks external affirmation (Stenstrom et al., 2018). As a result, we predict that after a service failure these Jordanian consumers will have stronger desire for online revenge by posting their stories online in order to seek some sort of reaffirmation from other consumers in the social media community. Therefore:

*H4: Narcissism will positively influence the consumer's desire for revenge.*

## **3.2. Social media effects**



### **3.2.1. Interactivity**

Generally, technological characteristics and features have been found to have an important effect on a consumer's behavioral intention and actual behavior in the electronic context (Tam & Oliveira, 2016; Dishaw & Strong, 1999). Significant research attention has examined the role of interactivity on customers' behavior and attitudes, and especially on consumer behavior in the online setting and on social platforms (Alalwan, 2018; Xu & Sundar, 2016; Ashley & Tuten, 2015). Customers have more space to express their own opinions, feelings, and feedback on social media platforms, which allows a two-way communication between the customers themselves or between customers and organizations (Barreda et al., 2016; Zhang et al., 2014). Interactive features are not available in traditional marketing or even in Web 1.0 applications (Alalwan, 2018; Alalwan et al., 2017). Therefore, customers are fully empowered by interactivity, and they are aware that they are able to share and deliver their emotions, attitudes, perceptions, and experiences with other customers (Wang et al., 2013). Alalwan et al. (2018) established that customers who perceive more interactivity also perceive social media advertising as more useful and entertaining, and they will have more intention to buy products. Interactivity has also been found by Namkoong et al. (2017) to have a crucial role in motivating individuals' behavior to research information and to share it over social media platforms. Barreda et al. (2016) found that interactivity has a positive impact on the brand image in a hotel setting. Even though there is a dearth of studies that have tested the impact of interactivity on customers' desire for revenge, we hypothesize that the more customers perceive interactivity on an organization's platform, the more they will perceive their ability to post and share their negative experiences with that organization. Additionally, interactivity could play a crucial role over the collectivist cultures such as Jordan, where people like to interact and communicate with each other more. This is largely observed by people interacting on social networking platforms in Jordan as reported by Alalwan (2018). Accordingly and taking advantage of this social media interactive feature, Jordanian customers who perceive a high level of interactivity and responsiveness from other customers over social media platforms are more likely to have a desire to get revenge if they have a bad experience with a firm (Alalwan et al., 2017). Thus:

*H5: Social media interactivity will positively influence the desire for revenge.*

### **3.2.2. Community**

Within the area of digital marketing, community is considered as important an element as other components of marketing (e.g., product, price, promotion, and distribution) (Pirkkalainen et al., 2018; Mohammed et al., 2003). Social media can enable both customers and firms to establish and sustain their own virtual communities (Fernando, 2010; Kim et al., 2004). In such online communities, customers are more likely to engage in discussion and conversation with others about the brands, products, and firms (Algharabat et al., 2019; Algharabat et al., 2017; Algharabat, 2017; Harrigan et al., 2017). Therefore, people perceive such communities as an attractive area in which to exchange, either negatively or positively, their ideas, thoughts, and experiences with brands. The main assumption here is that the consumer is keen to achieve the greatest negative impact on the

company with which he/she has a problem. Such an impact is not achievable without the existence of a community in which the customer can satisfy his/her desire for revenge. An online community enables a customer to attain goals that cannot be reached individually (Mohammed et al., 2003). Accordingly, we propose that the features of a social media community (namely, the size of the community, the type of members it has, and the extent of interaction it allows) could have an impact on customers' desire for revenge. Moreover, with Jordan being a collectivist culture (Triandis, 1973), Jordanian consumers are more likely to consider the feature of social media platforms that help to build and sustain online communities (Alalwan et al., 2017). Users of social media found these communities as a place to share their own thoughts and experience. Thus, with the increasing level of customer engagement within these communities over social media platforms, customers will more likely also to be inclined to take online revenge after a service failure considering that altruism was found to be a motive behind some revenge actions (Funches et al., 2009). This could be the result of some angry consumers needing to take advantage of this community aspect of social media and share their negative stories with their close friends, family, and other consumers in the community. Thus:

*H6: The social media community will positively influence the desire for revenge.*

### **3.2.3 Desire for revenge and online revenge intentions**

The customer's desire for revenge was introduced in the literature to reflect the behavioral intention to get revenge and to emphasize the role of moderating and mediating variables that could explain the transition from intention to actual behavior (Grégoire et al., 2010). In this study, we propose that desire for revenge will lead consumers to form online revenge intentions. Previous findings in the literature established the path between desire for revenge and online revenge (Grégoire et al., 2010). Findings have also established that the path between desire for revenge and online revenge intentions tends to be mediated by risk, reach, and control (Obeidat et al., 2017). Our model offers a distinction by examining the influence of social presence in driving this desire into online revenge intentions. Thus:

*H7: The consumer's desire for revenge will positively influence online revenge intentions.*

### **3.3. The moderating role of social presence**

The application of social presence theory to social media platforms considers how communication allows customers to be socially accepted (Algharabat et al., 2018; Tu, 2000). Social presence theory emerged from "interpersonal communication and symbolic interactionism" (Cui et al., 2013, p. 662) and has been extended to the social media context (Sullivan et al., 2019; Chang & Hsu, 2016; Nowak, 2013). Thus, Biocca and Harms (2002) asserted that social presence theory explains the role of technology in impacting consumers' social cognition (i.e., affecting and distorting it). Within the context of

consumer behavior, social presence is considered an important element that impacts consumer action (Argo et al., 2005). Latané (1981) stated that social impact theory explains the process by which people can be influenced by the presence of others (whether implied, real, or imagined), or by their actions (whether of another person or group of people). Extant literature suggests that customers tend to avoid activities that could create a negative image in sight of others (Argo et al., 2005; Herman et al., 2003). He et al. (2012) argued that, within the service context, social presence covers friends and family (in-group customers) and strangers (out-group customers). Therefore, within a collectivist culture such as the Middle East, more focus is put on the in-group customers: family, friends, and other people who care about the subject's welfare (Triandis, 1973).

When consumers try to get revenge online, they rely on the presence of other online customers. Therefore, this study focuses on the presence of other members (in-group) during service failure. The main rationale behind this assumption is encapsulated in the findings of Du et al.'s (2014) study, which found that a hotel customer who faces a failure situation in a group has a higher level of anger than if the service failure had occurred in an individual situation. A number of researchers who have examined the role of social presence have argued that face concern and social presence are correlated and interactive. Wan (2013) argued that in-group service failure makes customers' social presence significant because it creates an embarrassed customer. Fan et al.'s (2015) study posited that when Chinese customers experience a service failure they tend to have an intention to complain in front of in-group members. Chan and Wan (2008) found that customers use in-group online reviews to reflect their experience with service failure situations. Qiu et al. (2018) posited that social presence moderates both the relationship between face concern and word-of-mouth, and the relationship between face concern and online review. The authors found that social presence (as a moderator) strengthens the relationships between face concern and online review particularly when customers have negative experiences. Thus, social presence on social media platforms during service failure influences other people's understanding of the complainant's content (Chang & Hsu, 2016; Cui et al., 2013), impacts their feelings (McLean & Osei-Frimpong, 2017; McLean & Wilson, 2016), explains users' actions to evaluate the content of the revenge message (Chang & Hsu, 2016; Shen et al., 2010; Herring, 2004), and provides feedback for continuously following the outcome of such failure.

*H8: Social presence will moderate (a) the path between interactivity and the desire for revenge, (b) the path between community and desire for revenge, and (c) the path between the desire for revenge and online revenge intentions.*

Consequently, as seen in Figure 1, our theoretical model posits that after a double deviation the consumer's personal factors (i.e., primary and secondary appraisal, narcissism, and negative emotional elicitation) will lead to a desire for revenge. In addition, online features such as community and interactivity will also enhance the consumer's desire for revenge. Our model also posits that the social presence of the consumer will moderate the path between the desire for revenge and online revenge intentions.

*<insert Figure 1 about here>*

## **4. Research method**

### **4.1. Instrument**

To test the research hypotheses, a survey based on a “double deviation” scenario was developed following Joireman et al.’s (2013) developed scenario, which asks respondents to imagine that they wanted to buy a video game console and called ahead to book a time to collect it (See appendix A). However, upon arriving the console was unavailable (service failure), and when they returned to pick it up they were treated unhelpfully and rudely by the salesperson in front of other consumers and had to wait a while before receiving the item without an apology (recovery failure). However, to make the scenario more relevant to Jordan, where the data was collected, we changed the purchased object to an Internet router instead of a video game console. To further develop the scenario, we added a number of steps recommended by Parasuraman et al. (1991) and Bhandri (2010), including consultation of field experts, a realism test, and a pilot test. Consequently, we consulted managers from electronic stores and students, and we examined online consumer revenge cases and news reports.

After writing the first draft of the scenario, we consulted managers, their remarks were added, and the draft was modified. A pilot test was then conducted to test how realistic the scenarios were. Our sample was 60 students from the University of Jordan, 93 percent of whom thought it was very realistic, 6.5 percent thought it was realistic, and 0.5 percent thought it was very unrealistic. Moreover, the scenario scored high on a realism test ( $M = 8.3$ ;  $t(57) = 64.61$ ;  $p < 0.001$ ), we established, therefore, that the scenario was realistic. Such descriptive conditions have been extensively used by researchers on consumer misbehavior and service failure (Obeidat et al., 2017; Joireman et al., 2013; Tsarenko & Strizhakova, 2013) due to the ability of the scenarios to reduce memory lapses and to enact actual service failures, thereby reducing response bias (McCollough et al., 2000).

### **4.2. Data collection**

A sample of student volunteers was used to participate in the study. We chose such a sample because students are highly active users of the Internet and online social platforms, thus making them more likely to commit acts of revenge online (Obeidat et al., 2017; Peterson & Merunka, 2014). With regard to the measures used, most of the concepts were developed based on the previous literature on consumer revenge behavior, as shown in Table 3. Some of the scales were slightly modified to reflect a hypothetical condition, and they all had a good reliability. Aside from the scenario realism scale which used a 9-point

scale, all items were measured using a five-point Likert scale. The measures were pilot tested on a sample of 30 students. Respondents were first asked to provide their demographic information, and then they were presented with the scenario and the related measures. No issues were raised about the survey during the pilot study, so the formal data collection then began with student volunteers from the University of Jordan's Business School. Surveys were distributed to 600 students who expressed an interest in participating. The data collection started in September 2018 and continued until the end of October of the same year. A sample of 317 responses was eventually collected, with a 52 percent response rate.

## **5. Results**

Regarding the sample, 68 percent of the participants were female and 32 percent were male. Regarding the participants' ages, 98 percent of respondents were between 20 and 25 years old, with only two percent above the age of 25. Moreover, 95 percent of the sample were studying for their bachelor's degree, with only five percent of the sample currently completing their MBA degree. Almost all the sample (99 percent) had used a personal computer for more than three years and had also used the Internet for more than three years. With regard to the participants' previous online revenge behavior, 52 percent of the sample admitted to having committed an act of online revenge against a service provider, while 48 percent of the sample had no history of revenge actions. In addition, the scenario scored high on realism ( $M = 8.33$ ;  $t(58) = 65.71$ ;  $p < 0.001$ ).

### **5.1. Measurement model**

Using the AMOS22 package, the confirmatory factor analysis was targeted by considering model fitness, and construct reliability and validity. Several criteria were considered to assure adequate levels of construct reliability and validity, such as composite reliability (CR), average variance extracted (AVE), convergent validity, and discriminant validity. As shown in Table 3, all factors had a CR value higher than 0.70, the level recommended by Hair et al. (2010) and Straub (1989). The highest CR values were for desire for revenge (DR; 0.896) and betrayal (0.881), while social presence had the lowest CR value (0.836). The AVE values were also within their recommended level and were higher than 0.50 (Hair et al., 2010; Fornell & Larcker, 1981). Betrayal had the highest AVE value (0.713), followed by DR (0.684) and then anger (0.682). The lowest AVE value was for social presence (0.56).

*<insert Table 3 about here>*

As for convergent validity, all unremoved items had a value higher than 0.50, which reflected positively on AVE values. This means that all unremoved items adequately loaded on their corresponding constructs (see Table 3). The final requirement regarding construct validity was to ensure that all constructs reached a required level of discriminant validity. Table 4 also indicates that the discriminant validity condition was successfully

reached as all items largely loaded on their targeted constructs but differently on the other ones. Moreover, the values of the inter-correlation of constructs for all factors were less than the value of the squared root of AVE of the targeted constructs (Fornell and Larcker, 1981).

*<insert Table 4 about here>*

In order to test the model's fitness, the researchers adopted various indices of fitness: goodness-of-fit index (GFI), normed chi-square (CMIN/DF), root mean square error of approximation (RMSEA), normed-fit index (NFI), comparative fit index (CFI), and adjusted goodness-of-fit index (AGFI) (Byrne, 2016; Hair et al., 2010). The results indicated that the initial measurement model with all items did not fit the observed data, since a number of fit indices fell outside their recommended levels (GFI=0.821; AGFI=0.714; NFI=0.791; RMSEA=0.094; see Table 5). Therefore, we followed the suggestion of Byrne (2016), Hair et al. (2010), and Kline (2005) to enhance the model's fitness by looking at the most problematic construct items (See appendix A). By doing so, all items that had factor loading of less than 0.50 were removed from the model. This concerns narcissism (i.e. 4 items), social presence (i.e. 4 items), interactivity (i.e. 1 item), community (i.e. 2 items); primary appraisal (i.e. 3 items), secondary appraisal (i.e. 3 items), anger (i.e. 1 item), betrayal (i.e. 2 items), desire for revenge (i.e. 1 item) and online revenge intention (i.e. 1 item). Then, the revised model was tested again, and this time the fit indices were all observed to be within their threshold levels (see Table 5).

*<insert Table 5 about here>*

To test for common method bias, a bias common when using self-reported measures (Podsakoff et al., 2003), we performed two tests to assess any bias in the collected data due to the use of a single method. First, the Harman's single-factor test (1976) was conducted by performing an un-rotated factor analysis but with restraining the number of factors to one. If any issue existed then the single factor will explain the majority of the variance. However, the influence of common method bias was very low at 23.9 percent (i.e., less than 50 percent) (Podsakoff et al., 2003). Second, we conducted a common latent variable test using Amos, which uses a common factor to inspect the common variance for all observed variables (Podsakoff et al., 2003). Consequently, the results also showed support for the first test, and minimal bias was found for using this method with 4.5 percent.

## **5.2. Hypothesis testing**

In the second stage of structural equation modelling, we tested the model's fitness and validated the main research hypotheses. From the results of the fitness indices (GFI=0.901; AGFI=0.822; NFI=0.921; CFI=0.965; RMSEA=0.069) it could be concluded that the structural model adequately fitted the observed data (Hair et al., 2010). Furthermore, about

57 percent of variance was accounted in the customers' desire for revenge and 48 percent of variance was recorded for online revenge.

The main research hypotheses were tested using path coefficient analyses (see Table 6) and Figure 2. As expected, all research hypotheses were supported as significant apart from H2, which predicted an influence for the secondary appraisal on the desire for revenge. Anger was the most influential factor predicting desire for revenge with a regression weight of 0.484 followed by primary appraisal with a regression weight of 0.258 and then betrayal. Interactivity and community were also found to have a significant impact on the desire for revenge, with regression weights of 0.184 and 0.181 respectively. Desire for revenge was also predicted by the role of narcissism, with a regression weight of 0.216. Finally, a very strong significant path was noticed between desire for revenge and online revenge intentions, with a regression weight of 0.451.

*<insert Table 6 about here>*

*<insert Figure 2 about here>*

### **5.3. The role of social presence**

To test for H8 and the impact of the moderation construct (social presence), we used Hayes' (2017) process macro (model 58). Table 7 shows the interaction effect of social presence (the moderator) with (a) interactivity and desire for revenge (the dependent variable) and (b) community and desire for revenge. Results show that the  $R^2$  value of desire for revenge increased to 0.55. Furthermore, the  $R^2$  value for intention to take revenge increased to 0.22 with significant path coefficients at the 0.05 level or below. To further explain, our results show a slight increase in the relationships ( $R^2$  value; from 0.53 to 0.55) for the impact of social presence on the relationships between (a) interactivity and desire for revenge, (b) community and desire for revenge, and (c) desire for revenge and intention to take revenge ( $R^2$  value; 0.21 to 0.22), which demonstrates the strong influence of social presence on the proposed relationships. Second, to test for the direction of the moderation we should examine the interaction effects. Our results also show that the interaction terms have significant regression coefficients. For example, we find that the path coefficient of the interaction  $SP \star INTER \rightarrow DR = 0.12$  (significant at 0.05 level),  $SP \star COM \rightarrow DR = 0.14$  (significant at 0.05 level), and  $SP \star DR \rightarrow Online = 0.11$  (significant at 0.05 level) all have positive directions. Consequently, we found that social presence is a significant moderator, and thus H8a, H8b and H8c are confirmed.

*<insert Table 7 about here>*

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#### 5.4. Sample comparisons

As seen in Table 8, multiple group analyses were conducted to compare between male and female in the model results. Also, to see if these differences are significant,  $\chi^2$  Difference Test was applied. Results of  $\chi^2$  Difference test shows that the impact of the main predictors of desire for revenge is different in male and female participants. For example, anger was a very strong factor shaping the desire for revenge for females while this factor was not significant in the case of male groups. Likewise, community derived a considerable amount of attention from the perspective of male respondents, yet, the impact of community was not significant for female participants. Significant differences between male and female were also observed regarding the role of betrayal. Interactivity and narcissism were other factors noticed to behave differently due to gender differences; while these two factors strongly predict desire for revenge for males, their role vanishes for female participants. On the other hand, the impact of primary appraisal was found to be significant for both male and female. By the same token, the strong relationship between desire for revenge and online revenge intention was proved for both male and female.

*<insert Table 8 about here>*

Customer experience with revenge also has an impact on a number of key predictors of the desire for revenge as seen in Table 9. Therefore, multiple group analyses were also conducted to compare the results of those who have experience with revenge and those who do not. For example, desire for revenge for those participants with prior experience of revenge was noticed to be strongly predicted by the role of anger, interactivity, narcissism, and secondary appraisal in comparison with those who didn't have any experience of



revenge. However, no differences were observed regarding the impact of community where this factor was not significant for both types of participants. Primary appraisal was also noticed to be significant regardless of the customer's experience with revenge. Finally, the relationship between desire for revenge and online revenge intention was approved to be significant for both kinds of participants.

*<insert Table 9 about here>*

## **6. Discussion & Conclusion**

Using a scenario-based survey with 317 student volunteers, this study examined the impact of personal traits (narcissism, cognitive appraisal, emotions, and social presence) and features of online technology (interactivity and community) on consumers' desire for revenge and online revenge intentions. Structural equation modeling identified that the model has a very good fit. Moreover, data analysis showed that all of our hypotheses were supported aside from one (H2). Overall, the personal dimension of narcissism, cognitive appraisals, and negative emotions, in addition to the online features of interactivity and community, all had a significant influence on consumers' desire for revenge and subsequently on their online revenge intentions. Moreover, social presence was found to moderate the path between the consumer's general desire for revenge and his/her online revenge intention.

Generally, in terms of double deviations, primary appraisals, and negative emotions, our findings were all consistent with the literature findings that suggested that these variables were significant antecedents of consumers' desire for revenge and actual revenge acts (e.g., Obeidat et al., 2017; Joireman et al., 2013; Grégoire et al., 2010; Zourrig et al., 2009; Grégoire & Fisher, 2008). However, in contrast to previous findings, H2, which predicted an influence of secondary appraisal on consumers' desire for revenge, was rejected. However, this result can be explained by some findings in the literature that revealed that Jordanian and Eastern consumers from collectivist cultures are more emotionally charged than Western consumers as well as being less likely to attribute blame when compared to Eastern cultures (Obeidat, 2014; Zourrig et al., 2009). Consequently, these consumers move directly to a desire for revenge without considering the coping potential of their actions. Moreover, despite the double deviation, consumers could still engage in a primary or secondary appraisal. Secondary appraisal could not be significant here because consumers could evaluate that they have sufficient resources to overcome the unsatisfying service event (Obeidat et al., 2017). This further supports the importance of interactivity and community in encouraging acts of online revenge. The influence of narcissism, interactivity, community, and social presence are discussed next in the theoretical contributions section.

### **6.1. Theoretical contributions**

As our first contribution, this study wanted to test the hypothesis that narcissism would predict a significant influence on consumers' desire for revenge and online revenge intentions. Narcissism was predicted to instill a stronger desire for revenge and online revenge intentions. We found a significant and positive influence for narcissism on the consumer's desire for revenge. This result leads us to conclude that consumers with greater levels of narcissism will have a higher sensitivity to service failures and a weaker desire to forgive (Ong et al., 2011), thereby making them feel more entitled to a better service and increasing their online revenge intentions in the process (Buffardi & Campbell, 2008). Moreover, this higher tendency toward desire for revenge and online revenge could also be explained by findings that suggest narcissists seek more social support on social media after feeling socially neglected, which in this case could relate to a service failure (Carpenter, 2012). In addition, these findings back the common belief that people with higher levels of narcissism relish the self-presentational nature of the Internet and social media platforms (Buffardi & Campbell, 2008). Generally, aside from the established influence of psychological obstructionism traits on acts of consumer misbehavior, several studies have focused on validating the role of this trait on acts of revenge and online revenge (Obeidat et al., 2018). Our result is supported by some previous findings in the consumer behavior literature that have revealed positive links between narcissism and compulsive buying (Rose, 2007), narcissism and online anti-social behaviors (Ackerman et al., 2011), and narcissism and sensitivity to service failures (Ong et al., 2011). An examination of the relationship between narcissism and consumer revenge intentions on social media platforms is essential because these platforms are becoming increasingly important in people's lives and their consumption behavior (Carpenter, 2012). Previous findings show that narcissism levels have increased with the growing prevalence of social media platforms over the last 20 years with specific links between narcissism and anti-social behavior (Carpenter, 2012; Buffardi & Campbell, 2008; Twenge et al., 2008). Given that previous findings suggest that the wide reach of social media revenge messages motivates consumers to seek revenge online (Obeidat et al., 2017), we predicted a higher tendency to seek revenge online after a service failure for narcissistic consumers due to their higher preference for the self-presentation features of social networks. By examining this trait, we aimed to further develop the literature on online consumer revenge by focusing on personal traits that could trigger and encourage online revenge behavior.

Our results regarding the moderating impact of social presence on the path of (a) interactivity and desire for revenge, (b) community and desire for revenge, and (c) desire for revenge and online intention to take revenge show that social presence is a significant moderator for all three paths. Thus, H8<sub>a,b,c</sub> are supported. Accordingly, our results indicate that social presence positively impacts the relationship between (a) interactivity and desire for revenge, (b) community and desire for revenge, and (c) desire for revenge and intention to take revenge online. Our results show, therefore, that social presence has a significant positive impact as a moderator of both the relationship between interactivity, community, and desire for revenge, and the relationship between desire for revenge and intention to take revenge. Consequently, these findings make a further contribution by demonstrating the importance of social presence as a variable that can strengthen both desire for revenge and intention to get revenge online. Testing the moderating impact of social presence on

social media platforms during service failure remained an unexplored area despite the insights into the motivations of online revenge behavior it could offer.

In relation to our second contribution, this study predicted that the interactivity and community of social media platforms positively influence consumers' desire for revenge. A significant positive influence of social media community was found on consumers' desire for revenge. Consequently, social media platforms appear to provide angry consumers with a platform to share their revenge message with other consumers. This feature of online platforms enhances their appeal for angry consumers to commit acts of online revenge that could reach other community members and satisfy their need for revenge. Moreover, a positive influence was also found for social media interactivity on consumers' desires for revenge. This feature of social media platforms appears to increase consumers' perceptions of control over their online revenge actions and thus increases their desire to get revenge online (Obeidat et al., 2017). As a result, this feature of social media empowered angry consumers to communicate their negative emotions and experience to other consumers in their social media community (Namkoong et al., 2017; Wang et al., 2013). Generally, while these features of social media platforms often facilitate consumer engagement with brands and firms (Alalwan, 2018; Barreda et al., 2016; Zhang et al., 2014; Wang et al., 2013), they can also facilitate anti-social acts of revenge. Likewise, one of the core features of the applications of Web 2.0 (e.g., Facebook, Twitter, and Instagram) is the ability of consumers and firms to build and expand their own virtual community (Wang et al., 2013). The size of community and the type of people who join such communities largely impacts the way that customers behave and in this case commit acts of online revenge. Apart from general traits relating to Internet usage, such as the reach of the Internet, its risklessness, and the greater perception of control (Obeidat et al., 2017), limited attention was given to examining the specific features of social media platforms that facilitate and encourage this behavior. In general, these results are supported by the technology adoption literature, which suggests that technology features often enhance users' control, adoption, and intention to use social media platforms (e.g., Alalwan, 2018; Xu & Sundar, 2016; Ashley & Tuten, 2015; Mohammed et al., 2003).

Regarding our third contribution, this study incorporates for the first time two theories (i.e., cognitive appraisal and TTF) in examining online consumer revenge in an Eastern culture. It was necessary to select a theoretical foundation on which all aspects related to both system characteristics and personal characteristics are well covered. As the TTF model covered the main individual and technology characteristics, it was selected for the current study and integrated with the theory of cognitive appraisal to explain consumers' online revenge intentions. This theoretical foundation enables consumers' revenge intentions to be studied in relation to personal traits, cognitive appraisals, emotional elicitation, and technology characteristics, an aspect that has been often neglected in the previous literature. This holistic approach allows for a better understanding of the motivations for this behavior in the current day and age. Moreover, with the majority of the consumer revenge literature conducted in Western cultures, it was important to examine the factors influencing this behavior in Eastern countries where, because of the rise in usage of technological tools and social media platforms, the negative aspects also increased due to

the lack of regulations that could monitor these acts when compared to Western cultures (Jamal et al., 2019; Obeidat et al., 2018). Consequently, due to the collectivist nature of Jordan, Jordanian consumers appeared to take full advantage of the interactive and community features of social media platforms in order to share their negative service experiences. Similarly, Jordanian consumers' collectivist nature also seemed to enhance their social presence perceptions. Regarding narcissism, Jordanians' collectivist culture also seemed to encourage stronger online revenge intentions in order to seek external affirmation due to the relation of narcissism with a vulnerable and fragile self-concept (Stenstrom et al., 2018).

## **6.2. Implications for practice**

As previously suggested in the literature (e.g., Tripp & Grégoire, 2011; Grégoire et al., 2010), we also recommend that the best method to reduce acts of online revenge is through avoiding double deviations, which means that, after a service failure, firms should ensure quick recovery actions to handle the situation. Managers could also benefit from finding that consumers are more willing to forgive, for example, a bad meal than a rude waiter. In other words, any threats to consumers' egos can seriously encourage customers to take online revenge. When dealing with consumers with high levels of narcissism and their consequent higher sensitivity to service failures, firms could employ specific ego-restoring recovery actions, starting with an apology and followed by refunds and compensation. More specifically, when dealing with online consumer revenge posts, firms should make their apology public to other consumers as well as the angry consumer. While some acts of online revenge are unjustified, businesses should disburse sufficient funds to their online technological systems and complaint-handling mechanisms so that potential acts of revenge are managed and the situation is recovered before it goes viral.

Given the popularity of social media platforms and online groups on websites such as Facebook and Twitter, and due to the interactivity and community features of these social media sites, firms would benefit by ensuring that these pages act as customer support centers. Moreover, while firms should encourage consumers' social presence on and involvement in their social media pages in order to develop trust, this social presence could turn against them if consumers suffer a double deviation. Therefore, these pages should be used by firms to handle any customer complaints directly instead of merely being dedicated to promoting the firm's products or services. Furthermore, instead of using typical automated responses, recovery messages on these social media pages should be personalized and customized to make customers feel more valued and important, thereby minimizing customers' revenge intentions and any negative effects the revenge message could have on other customers in the community. The impact of social presence as a moderator has another important implication for marketing managers. Online marketing managers should deal with customers' complaints, and in particular those who like other customers to follow them up while they are trying to get revenge against the company. Thus, as the news spreads within the social media platforms, organizations should have

strategies to deal with the revenge aspects by defending themselves and enhancing their customers' online experience.

### **6.3. Limitations and future research directions**

While this study provides some useful insights, a number of limitations exist that may hinder drawing conclusions from its findings. First, the use of a scenario-based survey may have decreased the generalizability of the findings, since the hypothetical nature of the scenario may have made it easier for respondents to overstate or understate their negative emotions and appraisals of the situation. Consequently, future research should attempt to sample a group of online avengers who have recently committed acts of online revenge with a research design that asks respondents to revisit actual service failures and their responses afterwards. Nevertheless, it should be noted that more than half of the sample in this study had committed acts of revenge in the online context before their participation in this research. Furthermore, while experimental designs provide valued insights into revenge behavior, due to the sensitivity of the topic, especially in the case of illegal online revenge acts, future studies could employ more manipulation in the hypothetical scenarios in order to further examine the causality and relationships between the variables.

Second, the fact that the participants in this study were Jordanian university students may limit the external validity of the findings. As a result, future research could replicate our model and findings in a new setting and culture to determine whether these factors influence consumers' desire for revenge and online revenge, or whether other unidentified cultural factors and norms have a greater influence on this behavior. Additionally, given that this study measured narcissism as a single construct, future research could examine different dimensions of narcissism, such as grandiose and entitlement exhibitionism, and their influence on different acts of online revenge. Moreover, future research could also use more qualitative designs seeing as the majority of the literature adopted a quantitative approach. In particular, examining the influence of other personality traits on consumer revenge behavior and the correlations between them is very important. For example, the influence of the big five traits on consumer revenge or forgiveness tendencies remains unexplored. Finally, examining the influence of other features of online social media platforms on online consumer revenge intentions and behavior could provide additional insights into the nature of this behavior.

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### **Figure and Table captions**

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**Table 1: Themes in the consumer revenge literature**

Study	Objective	Research Context and Theory	Key contribution
Huefner & Hunt (2000)	Forms of offline consumer revenge	Offline, Hirschman Exit, Voice, Loyalty theory, the USA	Identified six types of consumer offline revenge: physical attacks, creating cost or loss, negative word-of-mouth, trashing, theft, and vandalism.
Bougie et al. (2003)	Consumer negative emotions and revenge	Offline, appraisal theory, The Netherlands	Anger and dissatisfaction has two different appraisal attributes that lead to different level of revenge actions.
Bechwati & Morrin (2007; 2003)	Factors influence desire for vengeance from both consumer and voter	Offline, justice theory, the USA	Very dissatisfying experiences can lead consumers to exact revenge on firms. It is the degree of interaction justice a consumer perceives that drives the vengeful behavioral responses.
Gregoire & Fisher (2005)	Antecedents of revenge	Offline, justice theory, the USA	The strong prior customer relationships reduce consumer revenge intention and consumers are more likely to see the service failure as an uncontrollable incident.
Grégoire & Fisher (2008)	The effect of “when love become hate” on consumer retaliation and reparation	None specific online or offline, justice-based theory, Canada	The higher level of relationship a customer has with the company, the stronger the violation of the fairness norm a customer feels, which leads to perceived betrayal and subsequent retaliation.
Funches et al. (2009)	Types of retaliatory behaviors	Offline, justice theory	Four types of retaliatory behavior were identified: cost/loss; consumption prevention; voice, exit and betrayal; and boycotting.
Zourrig et al. (2009)	Cultural values’ orientation in the process of consumer revenge	Offline, cognitive appraisal theory	Conceptual framework argues that allocentric (versus dicentric) consumers have a greater willingness to avoid conflict and are less likely to engage in revenge behaviors.

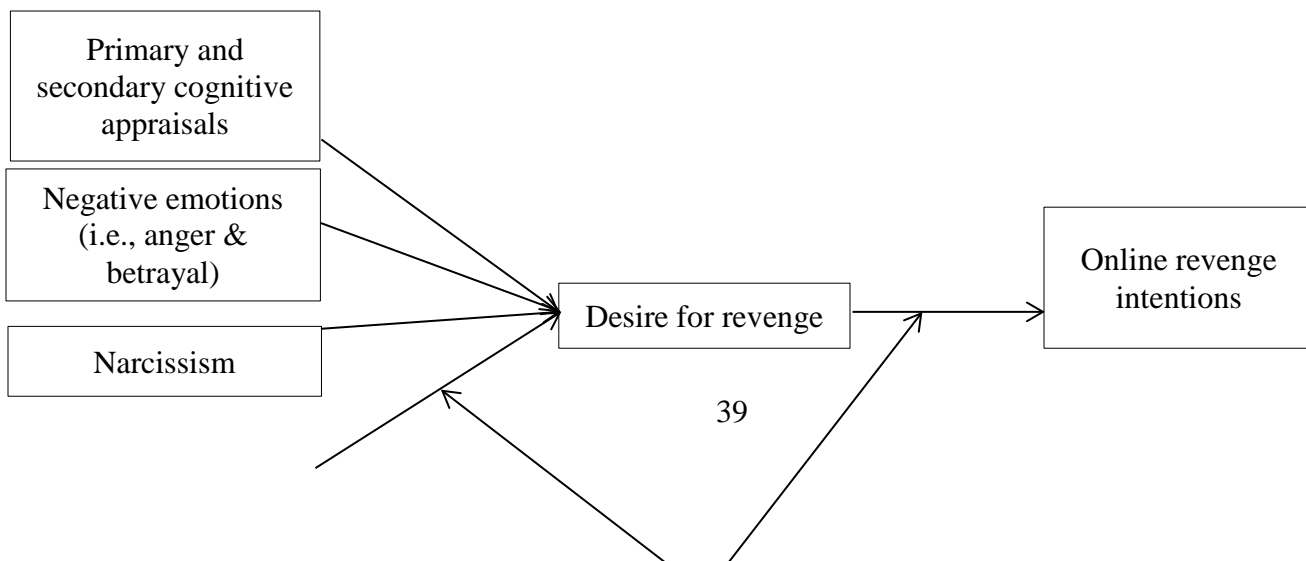
Grégoire et al. (2010)	The effect of perceived greed and power in consumer revenge	Online and offline, justice theory, the USA	Consumers perceiving a firm as greedy is the most influential cognition influence on consumer direct and indirect revenge; perceived power only has a significant impact on indirect revenge.
Mdakane et al. (2012)	The effect of relationship quality on consumer revenge intention	Online and offline, justice theory, South Africa	Power was positively related to customers' desire for revenge and empowerment positively related to their direct revenge behaviors, the better of the two evils.
Joireman et al. 2013	Consumer response to failed service recoveries (double deviation)	Online and offline, justice theory, Canada	Inference about a firm's positive and negative motive mediate the impact of blame, severity, and fairness on resulting outcome (anger and a desire for revenge and desire for reconciliation).
Obeidat et al. (2017)	Consumer online revenge towards two types of service failure in cross-national context	Online, cognitive appraise theory; the UK and Jordan	For Jordan and the UK, different service failure types lead to a different cognitive appraisal process and to intentions to use different online revenge platforms.
Obeidat et al. (2018)	Forms of online revenge	Online, cognitive appraisal theory	Three types of online revenge were identified – social media, aggressive, and their party revenge.
Grégoire et al. (2018b)	Motivation for revenge	Online, motivation of justice restoring theory, the USA	Vigilant and reparation cognitive schemas lead to different online compliant posts in different platforms, and moderate the process leading to different post-compliant benefits.
Grégoire et al. (2018a)	Consequences of revenge	Online and offline, justice restoration theory, the USA	Consumers' post-revenge responses vary based on the directness of the revenge behavior and justice restoration and public exposure perceptions.
Our study	The impact of social presence and the characteristic of social media on consumer online revenge	Online revenge, social presence theory, and cognitive appraisal theory; lower narcissistic culture, Jordanian consumers	From a social presence theory and technology fit aspect, we focus on a higher tendency to seek revenge online after a service failure for narcissistic consumers due to their higher preference for the self-presentation features of social networks – this is one of the first studies to examine the impact of social media and human interaction on online revenge behavior after double deviation failure.

**Table 2: Key definitions**

Constructs & definitions	Representative paper
<b>Narcissism</b> an extremely exaggerated positive and unrealistic self-image leading an individual to engage in self-regulatory schemes that confirm their positive self-image	Ong et al. (2011)
<b>Double deviation</b> refers to a failure in service performance and recovery action	Tripp & Grégoire (2011)

<b>Primary appraisal</b> refers to the consumer's evaluation of the relevance or importance of the service failure to his/her needs	Dalakas (2005)
<b>Secondary appraisal</b> whereby they evaluate their coping potential with the stressful encounter	Stephens & Gwinner (1998)
<b>Social presence</b> reflects customers' insights into their intentional, affective, or cognitive states regarding others	Nowak (2013), Nowak & Biocca (2001)
<b>Interactivity</b> a feature of a media channel that enables two-way communication and the ability of customers to have more control of the material and information posted on the media platform as a result	Kiousis (2002), Liu & Shrum (2002), Steuer (1992)
<b>Community</b> refers to "a set of interwoven relationships built upon shared interests that satisfy those needs of its members that are not attainable individually"	Mohammed et al. (2003, p. 13)
<b>Anger</b> emotion that contains a desire to reply and react	Bougie et al. (2003)
<b>Betrayal</b> refers to a consumer's belief that the firm has violated the rules of their rapport	Grégoire & Fisher (2008)
<b>Desire for revenge</b> refers to a wish to inflict harm on the service provider after a perceived wrongdoing	Grégoire et al. (2010)

**Figure 1: The online consumer revenge framework**

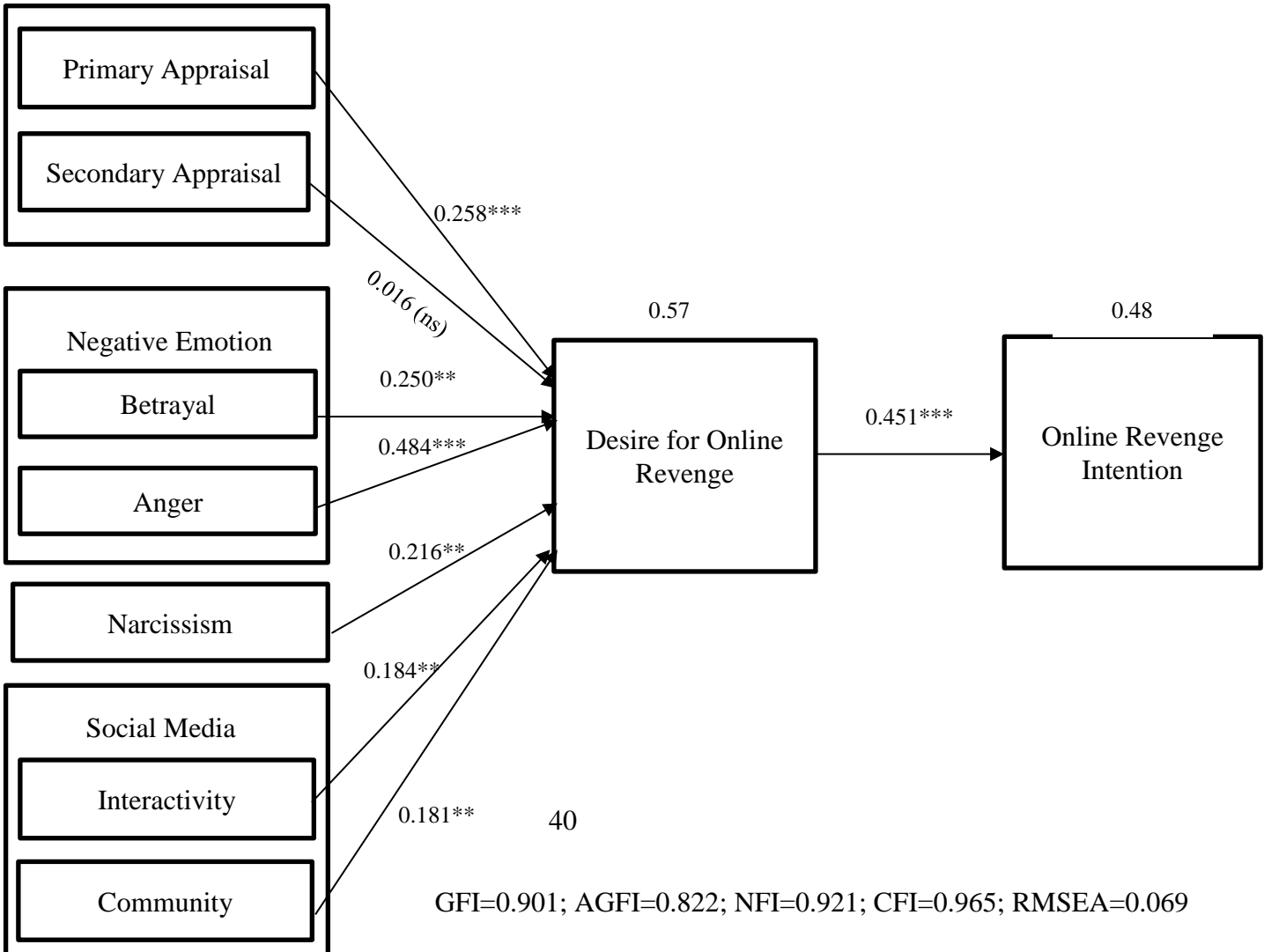




Social media effects  
(i.e., interactivity &  
community)

Social presence

Figure 2: Validation of the conceptual model



**Table 3: Key constructs, scale reliabilities, and sample items**

Constructs and sample items	Mean	Standard Deviation	Cronbach alpha & factor loadings	CR	AVE
<b>Primary appraisal</b> (sources: Lazarus & Folkman, 1984)			0.85	0.847	0.648
After this service failure, I would feel unworthy	4.12	0.82	0.801		
After this service failure, I would I feel I don't have much to offer	3.88	0.80	0.828		
After this service failure, I would feel useless	3.81	0.83	0.785		
<b>Secondary appraisal</b> (sources: Lazarus & Folkman, 1984)			0.86	0.813	0.592
In the face of such a stressful incident, I would feel I can remove its effect	3.88	0.83	0.751		
In the face of such a stressful incident, I would try to gain more or better skills to cope with it	3.85	0.79	0.821		
In the face of such a stressful incident, I would be able to think, recognize the situation, and do it	3.93	0.74	0.734		
<b>Anger</b> (Source: Gelbrich, 2009)			0.861	0.865	0.682
In this situation, I would feel outraged	4.10	0.67	0.79		
In this situation, I would feel resentful	4.10	0.68	0.894		
In this situation, I would feel indignation	4.10	0.67	0.789		
<b>Betrayal</b> (source: Bardhi, Price, & Arnould, 2005; Grégoire & Fisher, 2008)			0.86	0.881	0.713
In this situation, I would feel cheated	4.11	0.74	0.881		
In this situation, I would feel the firm intended to take advantage of me	4.10	0.66	0.812		
In this situation, I would feel the firm tried to abuse me	4.10	0.69	0.838		

<b>Desire for revenge</b> (source: Wade, 1989; Grégoire et al., 2010)			0.81	0.896	0.648
In this situation, I would want to take actions to get the firm in trouble	4.23	0.63	0.904		
In this situation, I would want to punish the firm in some way	4.15	0.63	0.852		
In this situation, I would want to cause inconvenience to the firm	4.07	0.66	0.841		
In this situation, I would want to make the service firm get what it deserved	4.05	0.72	0.698		
<b>Narcissism</b> (source: Raskin & Terry, 1988)			0.87	0.869	0.624
I think I am a special person.	4.22	0.73	0.765		
I like to be the center of attention	3.79	0.92	0.842		
I see myself as a good leader	4.10	0.78	0.765		
I am an extraordinary person	3.84	0.81	0.784		
<b>Social presence</b> (sources: Nowak, 2013; Chang & Hsu, 2016)			0.84	0.836	0.560
Social media interactions provide a sense of realism and belonging	3.79	0.92	0.723		
Social media interactions help others better understand me	3.60	1.00	0.751		
Social media presence makes it seem more like we are having a face-to-face conversation	3.52	1.06	0.744		
Social media presence would allow others to know me well even if I only met them online	3.55	1.00	0.774		
<b>Interactivity</b> (sources: Jiang et al., 2010)			0.82	0.865	0.618
Social media is effective in gathering customers' feedback	4.04	0.78	0.721		
Social media makes me feel like it wants to listen to its customers	4.13	0.66	0.706		
Social media encourages customers to offer feedback	4.13	0.70	0.907		
Social media gives customers the opportunity to talk back	4.11	0.73	0.794		
<b>Community</b> (sources: Kim, Lee, & Hiemstra, 2004; Gummerus, Liljander, Weman, & Pilhlstrom, 2012)			0.87	0.863	0.680
I am a social media community member because I want to get to know other community members	3.87	0.83	0.874		
I am a social media community member to help other community members	3.81	0.83	0.888		
I am a social media community member to get help from other community members	3.65	0.97	0.698		
<b>Online revenge intentions</b> (sources: Obeidat, 2014)			0.84	0.864	0.614
If this situation happened to me I would want to get revenge using Facebook status updates	3.95	0.91	0.794		
If this situation happened to me I would want to get revenge using Twitter	3.77	0.91	0.746		
If this situation happened to me I would want to get revenge by complaining to a consumer website	3.82	0.87	0.787		
If this situation happened to me I would want to get revenge by vindictively complaining to the firm page-group	3.77	0.90	0.807		

**Fit indices:**

CMIN/DF = 2.014; GFI=0.921; AGFI=0.852; NFI=0.932; CFI=0.974; RMSEA=0.062

CMIN/DF = normed chi-square; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; NFI = normed-fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation

**Table 4: Discriminant validity**

	Betrayal	Anger	DR	Online revenge intentions	Secondary appraisal	Primary appraisal	Social presence	Community	Interactivity	Narcissism
Betrayal	<b>0.844</b>									
Anger	0.761	<b>0.826</b>								
DR	0.645	0.716	<b>0.827</b>							
Online revenge intentions	0.344	0.344	0.506	<b>0.784</b>						
Primary appraisal	0.400	0.392	0.523	0.437	<b>0.805</b>					
Secondary appraisal	0.586	0.124	0.317	0.305	0.451	<b>0.769</b>				
Social presence	0.262	0.313	0.442	0.265	0.512	0.379	<b>0.748</b>			
Community	0.219	0.198	0.433	0.266	0.321	0.229	0.307	<b>0.825</b>		
Interactivity	0.311	0.261	0.396	0.264	0.451	0.220	0.181	0.376	<b>0.786</b>	
Narcissism	0.252	0.279	0.449	0.247	0.462	0.241	0.299	0.442	0.120	<b>0.790</b>

Note: Diagonal values are squared roots of AVE/off-diagonal values are the estimates of inter-correlation between the latent constructs.

DR = desire for revenge

**Table 5: Fit indices results**

Fit indices	Cut-off point	Initial measurement model	Revised measurement model after purification
<b>CMIN/DF</b>	≤3.000	2.847	2.014
<b>GFI</b>	≥ 0.90	0.821	0.921
<b>AGFI</b>	≥ 0.80	0.714	0.852
<b>NFI</b>	≥ 0.90	0.791	0.932
<b>CFI</b>	≥ 0.90	0.941	0.974
<b>RMSEA</b>	≤ 0.08	0.094	0.062

CMIN/DF = normed chi-square; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; NFI = normed-fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation

**Table 6: Hypotheses testing**

Hypothesized path	Estimate	SE	CR	P	Result
DR <--- Anger	.484	.057	5.682	***	Supported

DR <--- Interactivity	.184	.052	2.764	.006	Supported
DR <--- Community	.181	.055	2.698	.007	Supported
DR <--- Narcissism	.216	.079	2.734	.006	Supported
DR <--- Primary appraisal	.258	.046	4.090	***	Supported
DR <--- Secondary appraisal	.016	.066	.246	.806	Rejected
DR <--- Betrayal	.250	.046	3.227	.001	Supported
ORI <--- DR	.451	.111	7.246	***	Supported

DR = desire for revenge

ORI= online revenge intention

**Table 7: Moderation results**

Regression models			
Moderator	Social presence	Social presence	Social presence
Independent variable	Interactivity	Community	Desire for revenge
Dependent variable	Desire for revenge	Desire for revenge	Online review
R	0.74	0.74	0.46
R <sup>2</sup>	0.55	0.55	0.22
β coefficient	0.12	0.14	0.11
p-value	0.000	0.000	0.000
Interaction β coefficient	0.105	0.095	0.099

Interaction p-value	0.01	0.01	0.01
Significant moderation	Yes	Yes	Yes

**Standardized Regression Weights: (Group number 1 - Default model)**

	Estimate
DR <--- AN	.484
DR <--- INTER	.184
DR <--- COM	.181
DR <--- NR	.216
DR <--- P	.285
DR <--- B	.250
DR <--- SP	.180
online <--- DR	.451
n9 <--- NR	.470
n3 <--- NR	.657
n2 <--- NR	.572
n1 <--- NR	.720
sp7 <--- SP	.751
sp6 <--- SP	.740
sp4 <--- SP	.771
sp3 <--- SP	.733
inter1 <--- INTER	.627
inter2 <--- INTER	.702
inter3 <--- INTER	.916
inter4 <--- INTER	.790
com1 <--- COM	.561
com2 <--- COM	.982
com4 <--- COM	.518
p3 <--- P	.690
p2 <--- P	.924
p1 <--- P	.741
b5 <--- B	.934
b4 <--- B	.657
b1 <--- B	.536
an3 <--- AN	.795
an2 <--- AN	.922

		Estimate
an1	<--- AN	.752
dr5	<--- DR	.572
dr3	<--- DR	.599
dr2	<--- DR	.605
dr1	<--- DR	.563
online1	<--- online	.767
online2	<--- online	.619
online3	<--- online	.771
online5	<--- online	.638

**Table 8: Comparison of the path coefficient results between male and female**

Hypnotized Path		Female				Male				$\Delta\chi^2$	P-value
		Estimate	S.E.	C.R.	P	Estimate	S.E.	C.R.	P		
DR	<--- AN	.257	.089	2.898	.004	.017	.026	.654	.513	8.241	.002
DR	<--- INTER	.104	<u>.094</u>	1.102	.271	.251	.042	3.952	***	5.214	.041
DR	<--- COM	.139	.101	1.387	.165	.193	.075	2.584	.002	2.365	.091
DR	<--- NR	.003	.182	.016	.988	.343	.042	8.197	***	12.254	***
DR	<--- P	.489	.132	3.702	***	.179	.039	4.609	***	0.478	.547
DR	<--- SA	-.565	.180	-3.140	.002	-.074	.050	-1.48	.138	6.321	.009
DR	<--- B	.349	.140	2.493	.013	-.005	.022	-.236	.814	13.254	***
online	<--- DR	.883	.148	5.954	***	.664	.184	<u>3.612</u>	***	0.214	.941

**Table 9: Comparison of the path coefficient results according to prior experience with revenge**

Hypnotized Path			Experience with revenge				Non-experience with revenge				$\Delta\chi^2$	P-value
			Estimate	S.E.	C.R.	P	Estimate	S.E.	C.R.	P		
DR	<---	AN	.483	.105	4.585	***	.122	.090	1.356	.175	5.214	.015
DR	<---	INTER	.212	.147	1.441	<u>.009</u>	.254	.260	<u>.979</u>	.328	0.354	.963
DR	<---	COM	.037	.138	.270	.787	.070	.093	.756	<u>.450</u>	<u>0.426</u>	<u>.841</u>
DR	<---	NR	.259	.156	1.658	.007	-.004	.107	-.042	.967	7.251	***
DR	<---	P	.882	.355	2.485	.013	.155	.064	2.415	.016	4.251	.007
DR	<---	SA	.154	.044	3.488	***	.009	.094	.100	.920	8.253	***
DR	<---	B	.538	.324	1.660	***	.180	.068	2.642	.008	3.258	.047
online	<---	DR	.633	.181	3.491	***	.580	.178	5.441	***	0.174	.973

#### Appendix A:

***Please read this scenario carefully and imagine it happened to you:***

Zaid had a 100 jds budget to buy a new Internet router and decided to make the purchase at a local electronic equipment store, “Smartbuy”. Before driving the 20 minutes to the store, Zaid called to see if they had the Internet router in stock, and the person on the phone said they did. When Zaid arrived, however, the Internet router was not in stock. They ordered a new one, after making Zaid pay for it upfront, and Zaid had to return the following week to pick it up, driving another 20 minutes each way. After arriving at the store the following week, Zaid asked a salesperson to fetch the reserved Internet router out of the stock room. After responding in a rude manner to Zaid in front of others, the salesperson helped another customer for 30 minutes before handing Zaid the Internet router.



